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AUTHOR	Pitts, Joseph I.
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ABSTRACT

This report describes a reliability and validity study on a learning styles instrument that was developed based on the Dunn, Dunn, & Price model. That model included 104 Likert five-point scale items for investigating 24 scales grouped into five categories considered likely to affect learning. The Learning Style Preference Inventory (LSPI) tested in this study had 15 items. Students selected one of two choices for each item. Choice A indicated preferences of an analytical learner, and choice B indicated preferences of a global learner. A group of 1,098 randomly selected South Carolina students ranging in age from second grade to adult participated. To test reliability, teachers administered the test in January and again in April. To test validity, a different set of students took the test and then took a learning styles instrument called No Sweat, which also identified students as global or analytical learners. Results indicated that the LSPI was reliable and valid and suggested that it could be used by classroom teachers with confidence that it would produce the same results every time. (SM)

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A Teacher-Friendly Instrument in Identifying Learning Styles in the Classroom

Joseph I. Pitts

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A Teacher-Friendly Instrument in Identifying Learning Styles in the Classroom

Educators and researchers have been concerned for a long time with identifying how individual students learn. It seems that educators know almost intuitively that different students learn differently. Researchers have learned a great deal over the last fifty years about learning styles and how identifying learning styles and teaching to those styles can improve students' test scores and increase content knowledge. Teachers realize that some of the detailed description of the learning style may be lost with a shorter inventory. However, the benefit is an instrument that can be used quickly and effectively by classroom teachers.

Anybody that works in or with today's classrooms knows that teachers are under heavy pressure to cover a lot of material. The emphasis is on improved test scores. We know teaching to the students' learning style will improve scores (Dunn & Dunn, 1992). The problem seems to be, employing an instrument teachers can administer quickly and implementing the results immediately.

Carry (1987) pointed out that research on learning and cognitive styles evolved from the psychological research in individual differences. As this research took place researchers began to develop inventories and other measures to identify these learning styles. Over ten years ago Campbell (1991) pointed out there were at least 32 commercially published instruments being used by researchers and educators to access the different dimensions of learning styles. In the last decade many more learning style inventories have been developed, as one can see by reading the literature or browsing the internet. Sims & Sims (1995) point out that the problem with much of this research has

been to have an acceptable definition of learning styles and the way researchers identify learners.

A brief look at the literature points out this confusion. Different researchers identify learners in different terms. For example, in her book, Learning Style Perspectives, Sarasin (1999) reviews five different researchers and the way they identify learners: 1) Anthony F. Gregorc and Kathleen A. Butler identify learners as Concrete, Abstract, Sequential, Random and combinations of these styles; 2) Ronald and Sebrenia Sims identify learners as Cognitive, Perceptual, Behavioral, or Affective; 3) Bernice McCarthy identifies learners as Analytic, Imaginative, or Dynamic/Common Sensible; and 4) John N. Harb, S. Olani Durrant, and Ronald E. Terry identify learners as Reflective/Abstract, Concrete, or Active. This is just a partial list. With so many different ways to identify learners, no wonder some teachers seem a little hesitant to try and identify the different styles in their classroom.

In an effort to put some order to all of this chaos, Curry (as cited in Sims & Sims, 1995) organized 21 learning style instruments into a three-layer system.

> "The first layer (or core) presents learning behavior as controlled at a fundamental level by the central personality dimension. The middle layer centers around a theme of information processing dimensions. The outer layer, influenced by the interaction with the environment, is based on the theme of instructional preferences. The outermost layer of the model, and

> the most observable, is the instructional preference learning style conceptual approach. The three-layer connection between the personality layer and the outermost instructional preference layer, she claimed, is analogous to the trait and state concepts of personality theory." pp. 28 & 29.

Sims & Sims (1995) describe 18 of these 21 inventories. These inventories, as good as they may be, take up too much of the teachers' time to be used effectively. For example, the Canfield and Lafferty Learning Styles Inventory was designed with 120 self-report rank order items; the Dunn, Dunn, and Price Learning Styles Inventory for grades 5-12 has 104 Likert five-point scale items; and Hill's Cognitive Style Interest Inventory is composed of 216 items. Out of the 18 inventories that Sims and Sims describe, there are some with fewer items, but it seems that even those are somewhat teacher unfriendly. That is, the instrument can't be given, scored, and implemented in a relative short period of time. Having taught in the elementary and middle school classroom for fourteen years, and having supervised student teachers for ten years, this writer understands the amount of time inventories (of any type) take up in the classroom. So the question is how can teachers in the classroom make use of an instrument that will identify learning styles and be teacher friendly at the same time?

The purpose of this research was to conduct a reliability and validity study on a learning styles instrument that was based on the Dunn, Dunn, & Price model. This model is composed of 104 Likert five-point scale items in order to investigate 24 scales grouped into five categories considered likely to affect learning: environmental, emotional, elements, sociological, and psychological elements. "The Dunn, Dunn, and Price

inventory was psychometrically rated as good reliability evidence and good validity evidence" (Sims & Sims, 1995, p.31).

This is an excellent tool to use in the classroom and it has been proven to be effective (Dunn & Dunn, 1992). However, it does take a long time to administer. For a fee, an educator can send the answer sheets off and get back a detailed analysis. Even though the instrument is effective, this is a very time consuming and expensive process, and the results come back in such a way that they seem to be difficult to implement easily.

The instrument being tested has been developed from the research conducted by Dunn & Dunn (1992) to identify global and analytical learners. They found that analytics learn more easily when information is presented step by step in a cumulative sequential pattern that builds toward a conceptual understanding (part to whole); prefer to learn in a quiet, well-illuminated, formal setting; often have a strong emotional need to complete tasks; like to learn alone or with a teacher; prefer a lot of structure to the assignments; and rarely eat, drink, smoke, chew, or bite on objects while learning. Dunn & Dunn point out that globals are just the opposite on these elements. It seems to this writer that once a teacher gets an idea if a student approaches learning in a global or analytical fashion, the teacher knows how to implement different strategies that would benefit the different learners.

The Learning Style Preference Inventory (LSPI) that is being tested in this research has 15 items. The student chooses one of two choices for each item. Choice A indicates preferences of an analytical learner, and choice B indicates preferences of a global learner. A total of 1098 randomly selected students were used, ranging in age from

second grade to adult. The total sample had a wide range of abilities and grade levels represented. All students were located in the upper part of South Carolina. To test reliability, teachers were asked to administer the test in January, and then again in April. Since there were only 15 items and the scoring was easy and simple, the teachers did not mind participating in the research. For reliability a correlation was determined to see how the analytical scores from the January testing related to the analytical scores in the April testing. A correlation was also determined in the same way for the global scores. See Table One for the correlation and the critical value needed to be statistically significant.

Table 1 Reliability Scores for LSPI

Grade	N	Corr. Of Analy. Scores From Jan. to Apr.	Critical Value Needed @ .01	Corr. Of Global Scores From Jan. to Apr.	Critical Value Needed @ .01
2-5	419	.51	.13	.51	.13
6	148	.61	.21	.60	.21
7	387	.60	.15	.60	.15
8	87	.62	.21	.62	.21
Adult	57	.68	.33	.68	.33

For validity a different set of students were used. This time the students took the LSPI and then took a learning styles instrument called No Sweat developed by Cindy Tobias (1994) based on Anthony Gregorc's work. This test also identified students as global or analytical learners. Tobias describes the global style person as one that sees the big picture, or overall view, while the analytic focuses on the parts that make up the big

picture. She says the more analytic student figures that you have to get the parts clear to eventually understand the whole, while the global claims there's no point in clarifying a detail if you can't see where it fits into the big picture. The Spearman Rank Order Correlation Coefficient was used to determine validity. See Table 2 for validity scores.

Table 2 Validity Scores for LSPI

Level	N	rs	Critical Value Needed @ >01
Adult Grad	15	>93	.645
Adult Block	33	.96	.432
8th Grade	14	.93	.654
6th Grade (1)	14	.79	.654
6th Grade (2)	17	.79	.601
6th Grade (3)	17	.92	.601
6th Grade (4)	22	.95	.508
6th Grade (5)	20	.93	.534
6th Grade (6)	17	.86	.601
Total	169	.99	.432

From these scores we can determine that the LSPI is reliable and valid. Therefore, the LSPI can be used by classroom teachers with the confidence that it will produce the same results every time. The classroom teacher can also be confident that the LSPI will determine if a student approaches learning new and difficult material in a global or analytical fashion.

The stated purpose of this research was to determine if an instrument developed by this writer to identify global and analytical learners quickly and in a friendly manner was reliable and valid. The instrument developed was based on the Learning Style

Inventory model first used by Dunn & Dunn (1992). The instrument being investigated here, the LSPI, was found to be valid and reliable.

There are several benefits for teachers using the LSPI and identifying students as analytical or global in their approach to learning new and difficult material. First, teachers can get a better idea as to how to group students compatibly. Not everybody likes working in groups (Dunn & Dunn, 1992). Second, by understanding the way students process information, teachers can use different instructional techniques to make sure all students have the opportunity to understand what is being taught. Third, when teachers know if students prefer the analytical or global approach to learning, they are able to have more flexibility in the classroom, because they can implement a rewards system based on identified preferences of the students. For example, if several students prefer to work in a group, they may do so as long as they meet the academic and behavior standards set by the teacher.

It has been said that students don't care how much the teacher knows until they know how much the teacher cares. Using the LSPI will help the students know that the teacher does care about how much the students know and how they learn. Using this instrument tells the students the teacher wants to present the material in such a manner that all students have the opportunity to be successful in the classroom. Having a teacher-friendly instrument to identify global and analytical learning styles in the classroom will be very helpful in fulfilling the mandate that no student be left behind.

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Signature: Joseph I. Pitts	Printed Name/Position/Title: Joseph I. Pitts / Associate Professor
Organization/Address: Limestone College 1115 College Dr. Gaffney S. C. 29340	Telephone: 864-488-4534 FAX: 864-487-8706
	E-Mail Address: jpitts@saint.limestone.edu Date: 10/29/02

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